



# **California's Climate Change Activities**

**Bob Therkelsen**  
**California Energy Commission**

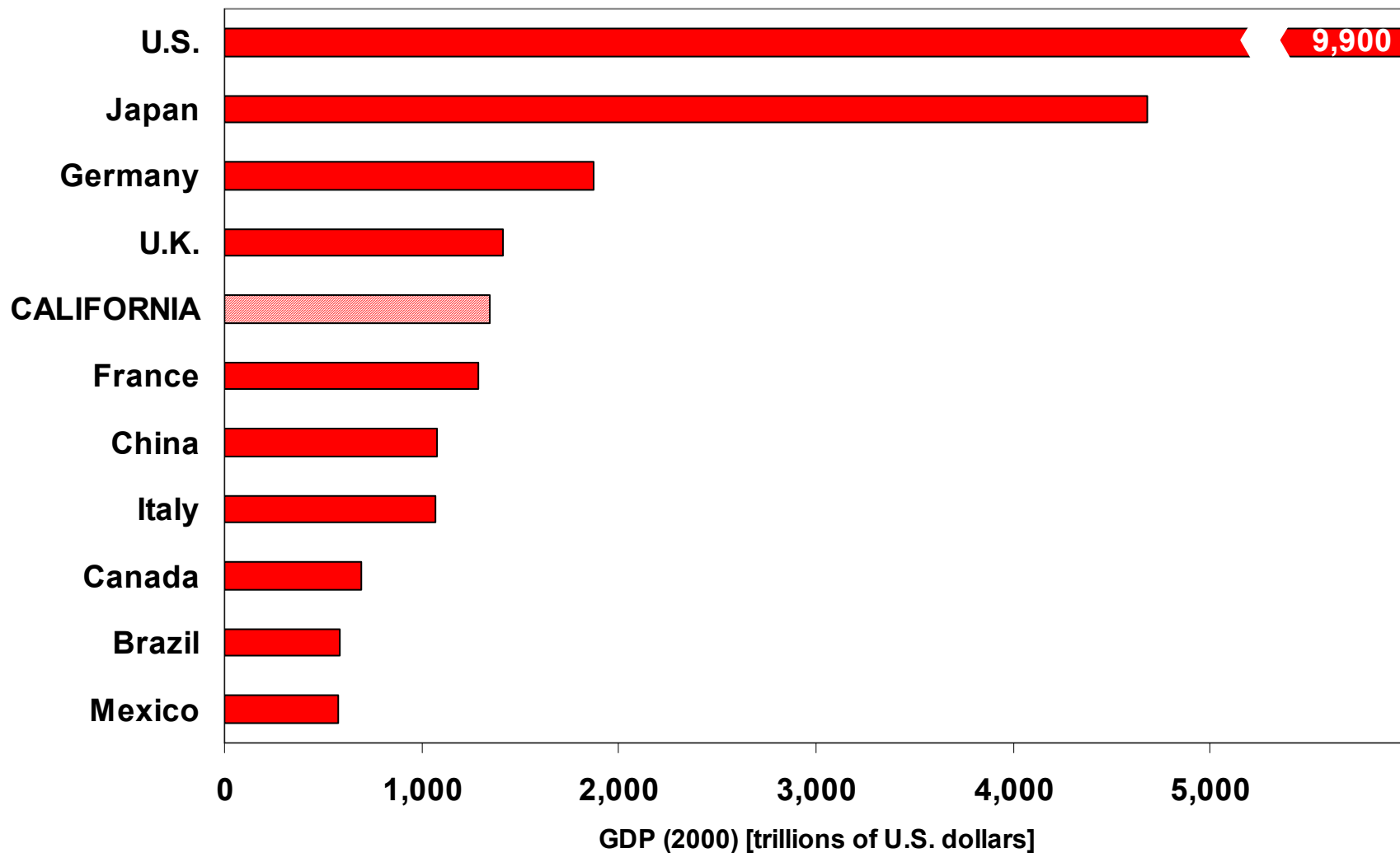


# California...

- **34 million people and growing**
- **5th largest economy in the world**
- **5<sup>th</sup> largest consumer of energy in the world**
- **2<sup>nd</sup> largest consumer of gasoline and diesel**
- **5<sup>th</sup> most economical energy consuming economy**
- **40% of western US electricity market**
- **Lowest US per capita electricity usage**



# GDP (2000)



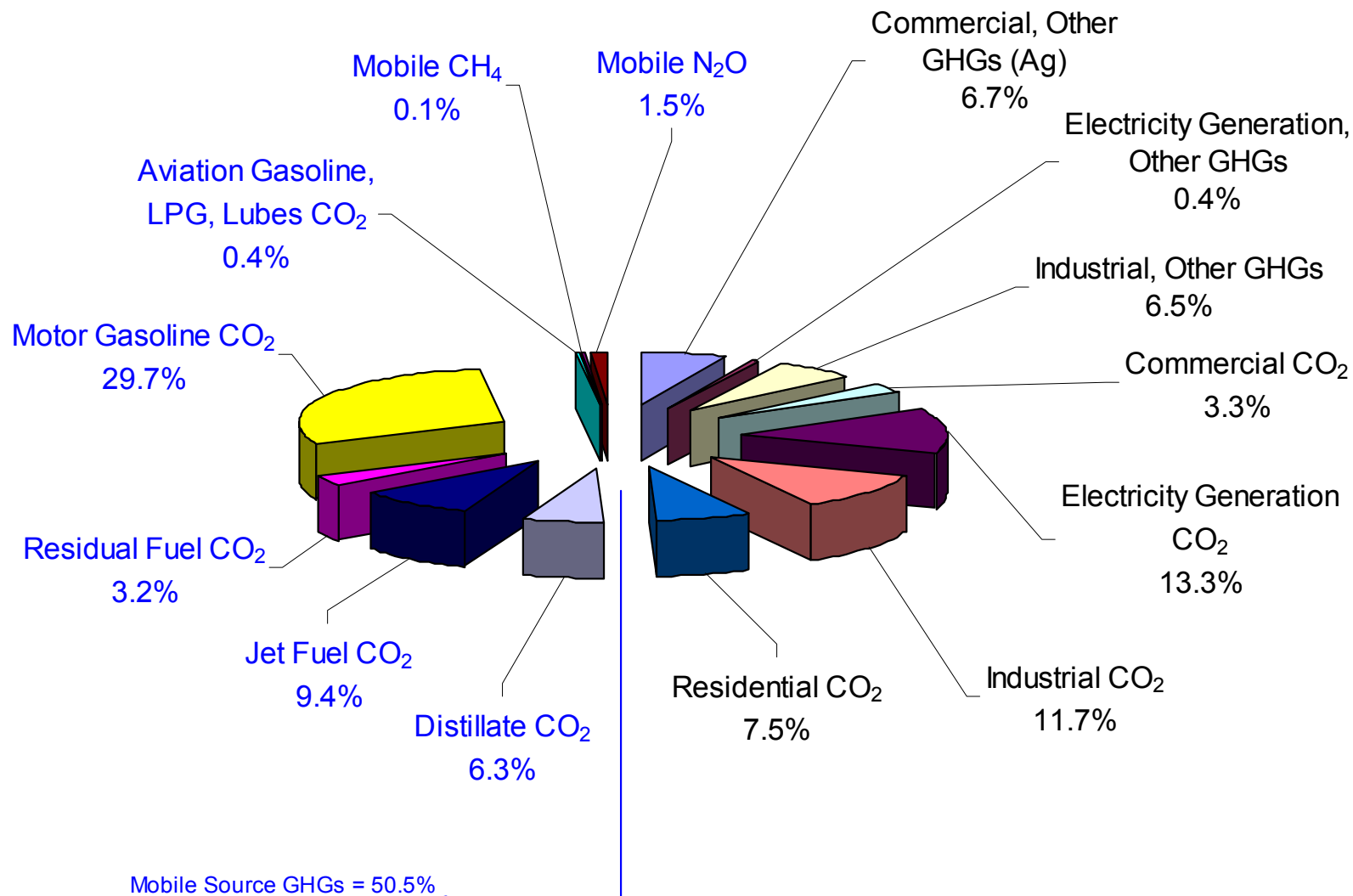


# California...

- **Peak demand – 51,859 megawatts (2003)**
- **Over 53,700 megawatts of generation**
- **Over 25.5 million vehicles**
  
- **80% of Californians live near the coast**
- **50% of water supply from snow pack**
- **20% of electricity from hydropower**
- **29% of peak from air conditioning**

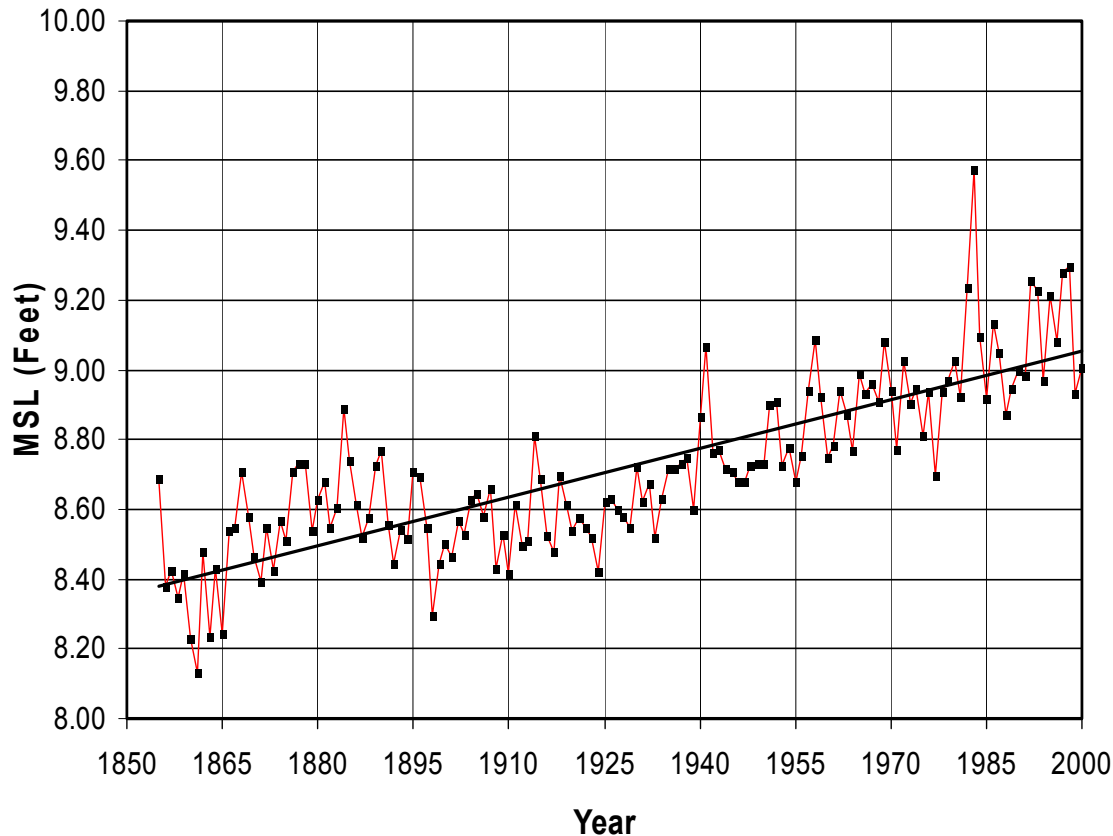


# CA GHG Emissions (1999)





# California Sea Levels



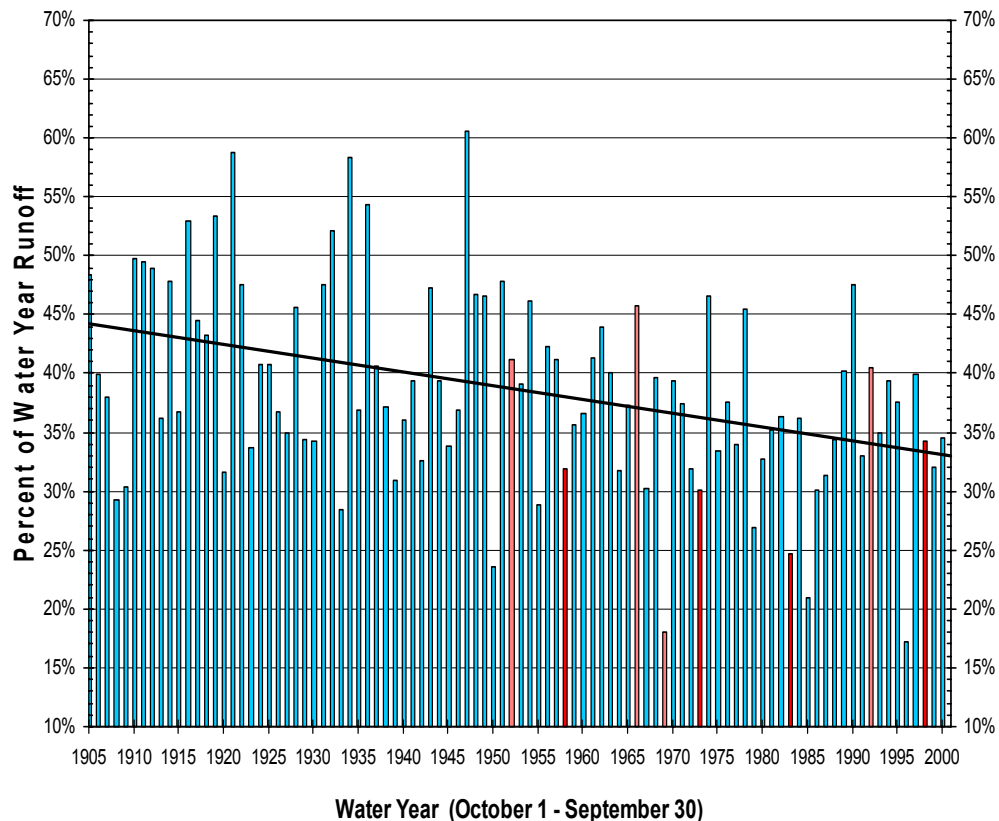
***San Francisco Yearly Mean Sea Level  
(1855-2000)***

Source: Ca. Env. Protect. Agency, Environmental Protection Indicators for California, 2001

- CA has seen a 7" rise in 150 years
- IPCC projects 4-35" sea level rise by 2100
- Concerns over levee stability and salt water intrusion



# California Snow Pack



**Sacramento River Runoff (1906-2001)  
April to July as a Percent of Total Runoff**

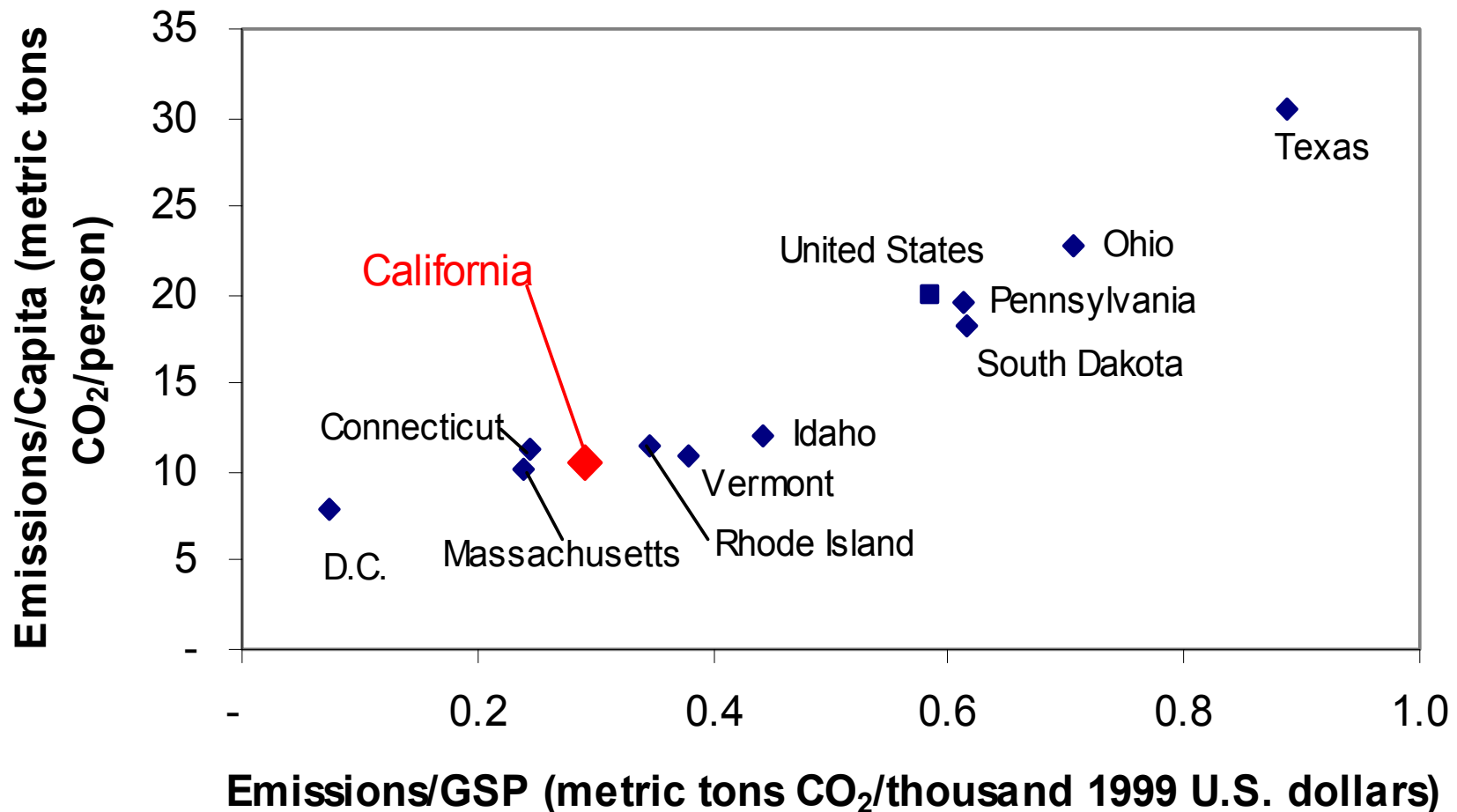
Source: Ca. Env. Protect. Agency, Environmental Protection Indicators for California, 2001

## Warmer Winters Have:

- Reduced snow pack
- Earlier snow melt
- Decreased spring runoff by 10%
- Major effects on water supply, water distribution, and water ways



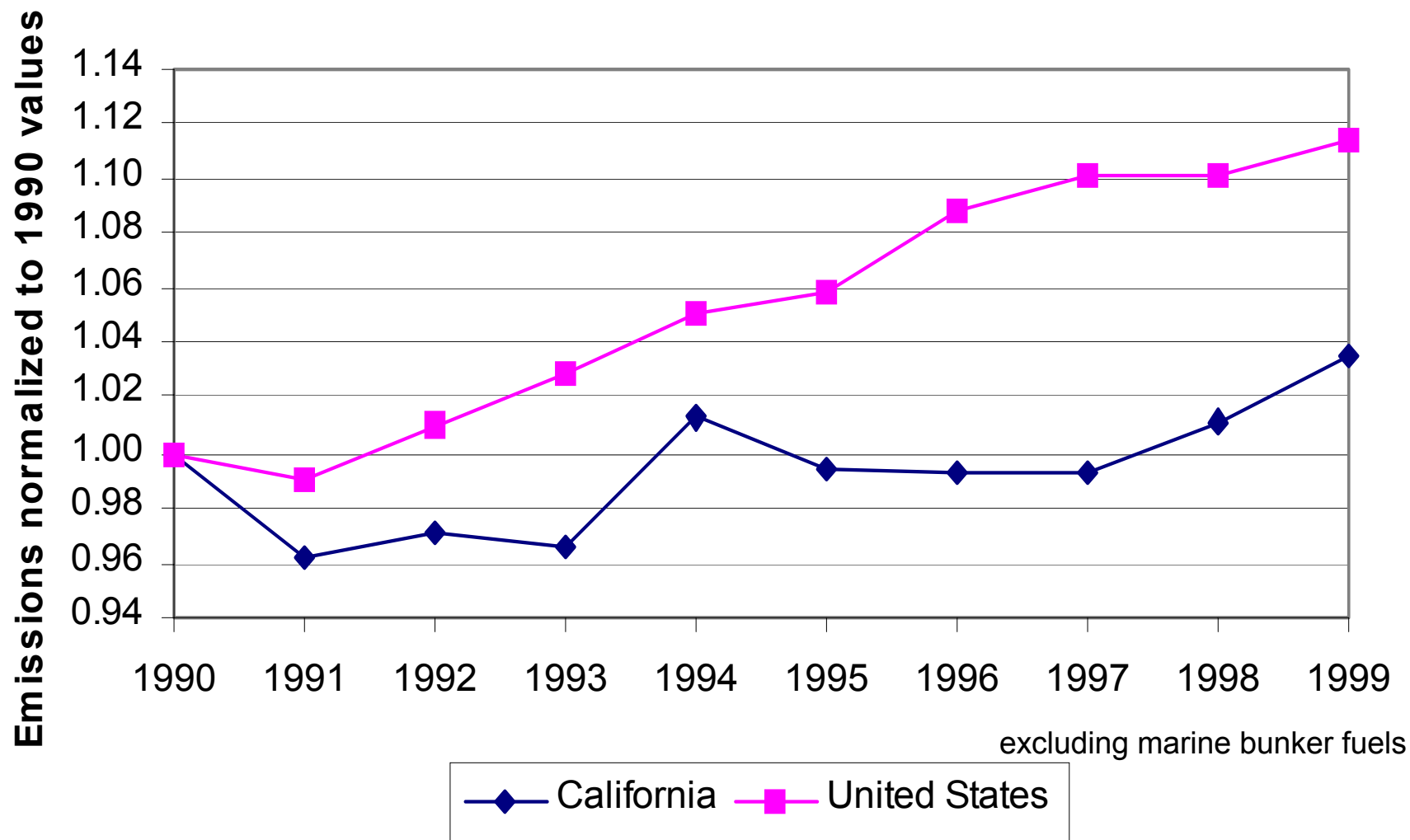
# 1999 Carbon Intensity (California and Selected States)





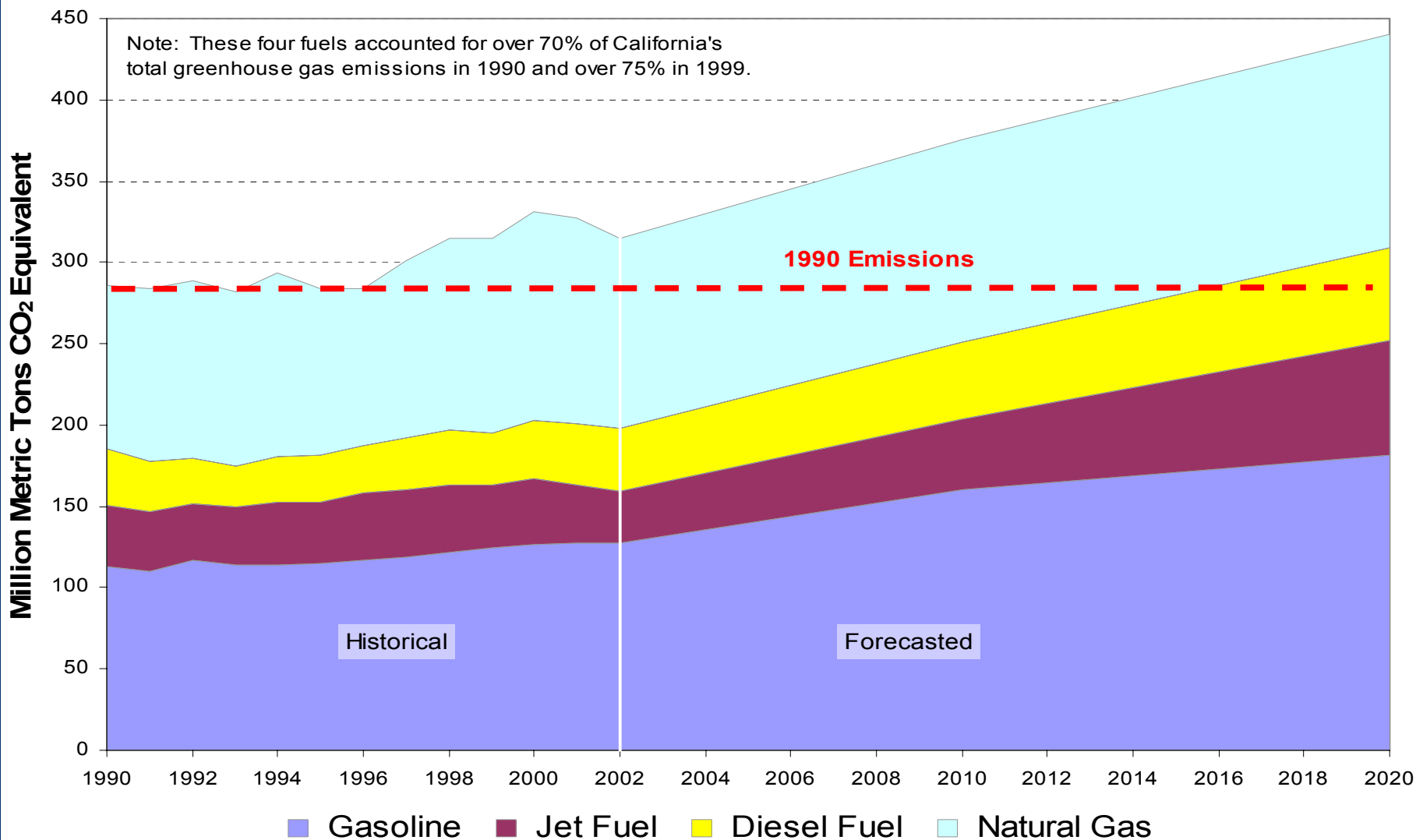


# 1990-1999 Relative Gross Greenhouse Gas Emissions



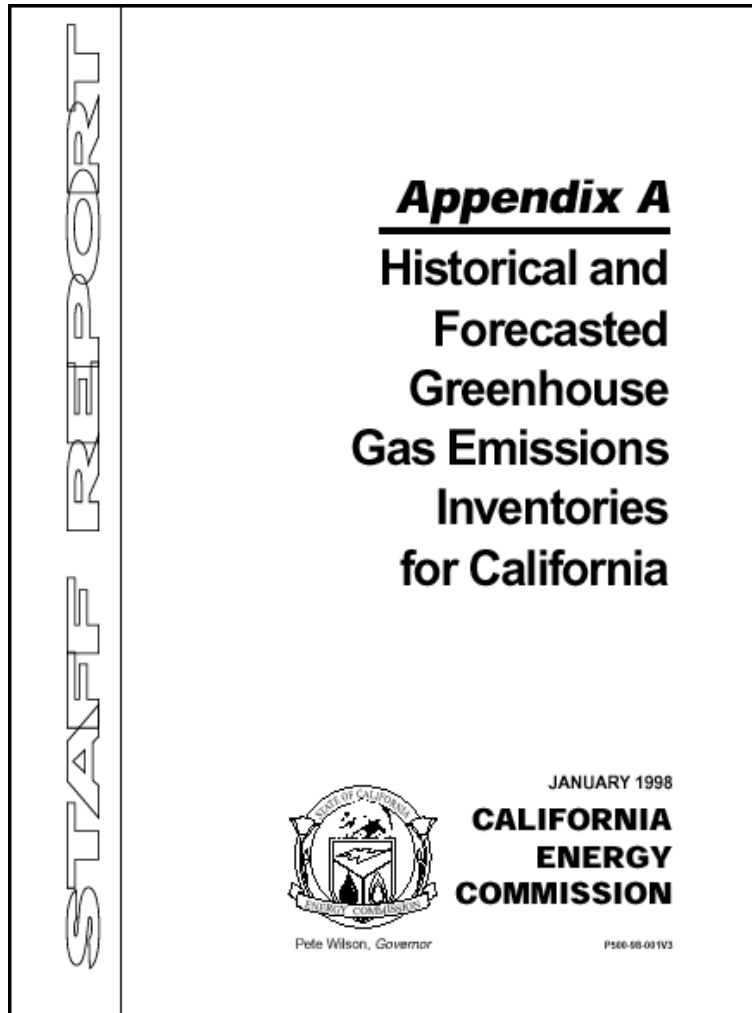


# CA Fossil Fuel CO<sub>2</sub> Emissions





# Not-so-recent history



- **1988 AB 4420 (Sher) – Potential impacts of climate change**
- ***1991 - Global Climate Change: Potential Impacts and Policy Recommendations***
- ***1997 - Global Climate Change Report: Greenhouse Gas Emissions Reduction Strategies for California***



# 1991 Recommendations

- 1. Promote energy-efficiency**
- 2. Account for environmental externalities**
- 3. Promote renewable generation**
- 4. Promote high-efficiency gas generation**
- 5. Improve forestry, solid waste and recycling, and livestock management**



# 1991 Recommendations

- 6. Expand markets for alternative fuels**
- 7. Promote R&D on biomass-based fuels**
- 8. Reduce vehicle miles traveled**
- 9. Expand land use planning to manage transportation demand**



# SB 1771 & 527 – GHG Emissions

Senate Bill No. 1771

CHAPTER 1018

An act to add Chapter 6 (commencing with Section 42800) to Part 4 of Division 26 of the Health and Safety Code, and to add Chapter 8.5 (commencing with Section 25730) to Division 15 of the Public Resources Code, relating to air pollution.

[Approved by Governor September 30, 2000. Filed  
with Secretary of State September 30, 2000.]

## LEGISLATIVE COUNSEL'S DIGEST

SB 1771, Sher. Greenhouse gas emission reductions: climate change.

(1) Existing law imposes various emission limitations for the control of vehicular and nonvehicular air pollution. The State Air Resources Board is designated by state law as the air pollution control agency for all purposes set forth in federal law.

This bill would require the Secretary of the Resources Agency to establish the California Climate Action Registry as a public benefit nonprofit corporation, that would record and register voluntary greenhouse gas emission reductions made by California entities after 1990. The bill would require the registry to perform various functions, including adopting standards for verifying emissions reductions, adopting a list of approved auditors that would verify emissions reductions, referring entities to approved firms to verify emissions reductions, establishing emissions reduction goals, designing and implementing efficiency improvement plans, maintaining a record of all emissions baselines and reductions, and recognizing, publicizing, and promoting entities that participate in the registry.

The bill would also establish responsibilities for the State Energy Resources Conservation and Development Commission to develop a process to identify and qualify third-party organizations approved

- **California Climate Action Registry**
- **Update of GHG inventory (every 5 years)**
- **Climate Change Program**



# AB 2076 - Reduce Petroleum Dependence

Assembly Bill No. 2076

CHAPTER 936

An act to add Chapter 8.2 (commencing with Section 25720) to Division 15 of the Public Resources Code, relating to fuel resources.

[Approved by Governor September 29, 2000. Filed with Secretary of State September 30, 2000.]

## LEGISLATIVE COUNSEL'S DIGEST

AB 2076, Shelley. State Energy Resources Conservation and Development Commission: fuel supply.

Existing law requires the State Energy Resources and Conservation and Development Commission to develop contingency plans to deal with possible shortages of electrical energy or fuel supplies to protect public health, safety, and welfare.

This bill would require the commission to examine the feasibility of operating a strategic fuel reserve and to examine and recommend an appropriate level of reserves. If the commission finds that it would be feasible to operate such a reserve, the bill would require the commission to report this finding to the Legislature and request specific statutory authority and funding for establishment of a reserve. The bill would also require the commission to develop and adopt recommendations on a California Strategy to Reduce Petroleum Dependence.

*The people of the State of California do enact as follows:*

SECTION 1. Chapter 8.2 (commencing with Section 25720) is

- **Transportation Energy Efficiency Measures**
- **Advanced vehicle technologies, including alternative fuel vehicles**
- **Non-Petroleum and Alternative Fuels**
- **Measures to Affect Consumer Fuel Demand**



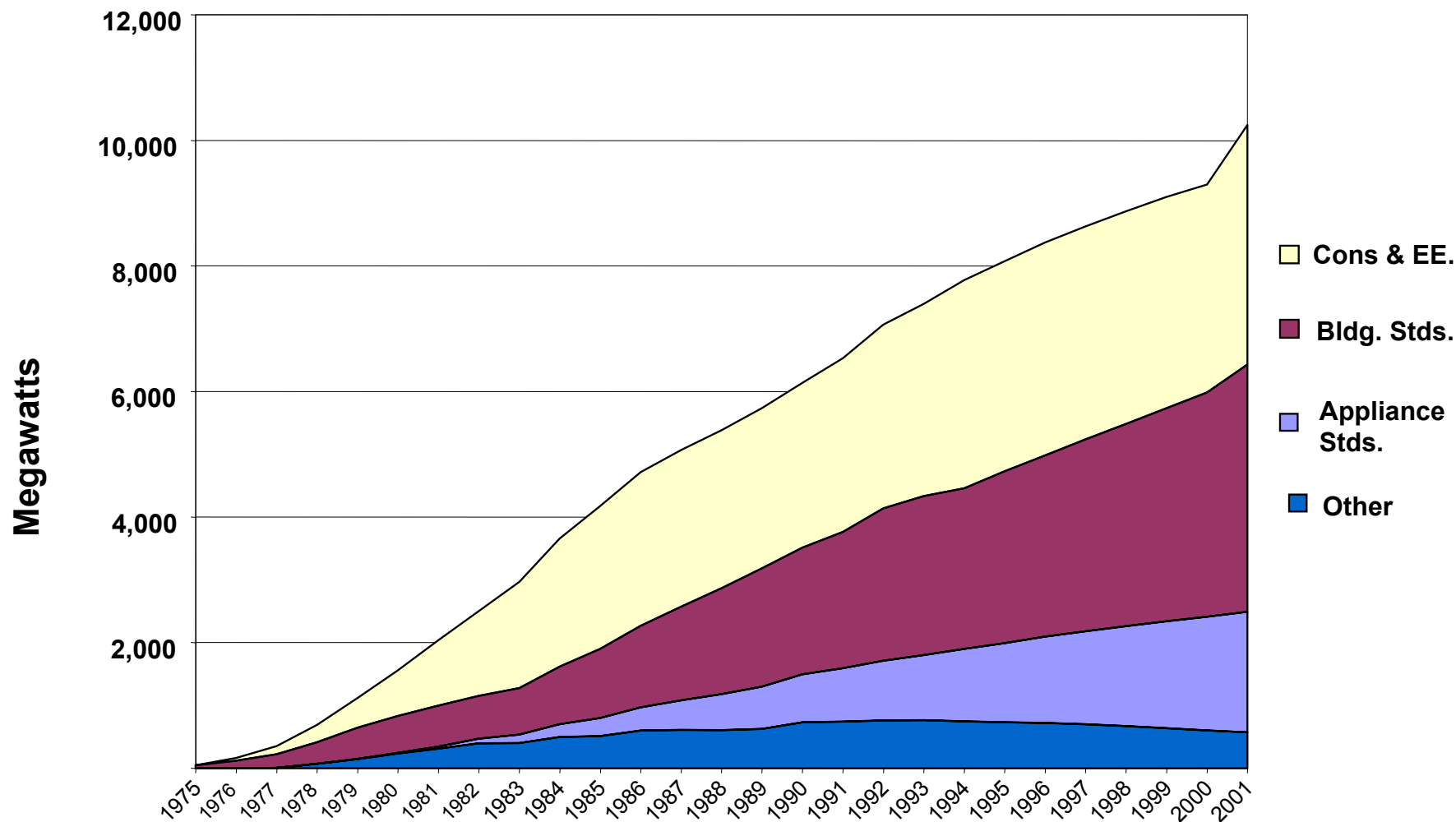
# California GCC Initiatives

- **2002 - AB 1493**
  - Develop mobile source GHG standards
  - Expand Registry to mobile sources
- **2002 - SB 812**
  - New “Climate Action Registry” duties





# Energy Efficiency Impacts



Energy efficiency standards and programs have been saving energy since 1975.



# **Renewable Portfolio Standard**

- **20% renewables by 2017**
  - retail sales of electricity
  - investor-owned utilities
  - increase portfolio by at least 1% per year
- **Energy Action Plan –  
Accelerate to 20% by 2010**



# Climate Action Registry

- **Non-profit organization**
- **Voluntarily register GHG emissions**
- **Report direct and indirect emissions**
- **Independent third-party certifiers**
- **Currently over 40 members**
- **Sound GHG accounting procedures**



# Forest Sequestration of CO<sub>2</sub>

- **SB 812 (2002)**
- **California Climate Registry to adopt**
- **Protocols**
  - carbon stocks and CO<sub>2</sub> emissions
  - sequestered by forest conservation
  - reforestation of native forests in California
- **Forest lands permanently dedicated**
- **Activities exceed current requirements**



# Reducing Petroleum Dependence

- **Joint ARB and CEC report**
- **Recommended Goals:**
  - **Reduce fuel demand to 15 percent below the 2003 level by 2020**
  - **Double national fuel economy standards**
  - **Increase the use of alternative fuels to 20 percent by 2020**



# Vehicle GHG Emissions

- **AB 1493 (Pavley)**
- **California Air Resources Board regs**  
*“achieve the maximum feasible and cost-effective reduction in GHGs emitted by passenger vehicles and light-duty trucks”*
- **Staff Proposal - June 14, 2004**
- **Adopt – September 2004**



# Energy Report

- **2003 Integrated Energy Policy Report**
  - Partner with neighbors
  - Require reporting of power plant GHG emissions
  - Support the goals to reduce petroleum consumption
  - Use sustainable energy and environmental designs in state buildings
  - Require state agencies to incorporate climate change mitigation and adaptation strategies in planning and policy documents
- **2005 Integrated Energy Policy Report**



# **West Coast Governor's Global Warming Initiative**

- **California, Oregon and Washington**
- **Reduce GHG emissions on west coast**
- **Focusing on:**
  - **energy efficiency**
  - **renewable energy**
  - **port and truck stop emissions**
  - **state fleets**
  - **emission inventories and reporting protocols**
- **Recommendations – September 2004**





# **Joint Agency Climate Team**

- **Resources Agency**
  - Energy Comm.
  - Water Resources
  - Forestry
  - Fish & Game
- **Cal EPA**
  - Air Resources
  - Water Resources
  - Integrated Waste
  - Toxics
- **Business, Transport. and Housing**
  - CalTrans
- **Food and Agriculture**
- **General Services**
- **Office of Planning and Research**
- **Controller's Office**



# JACT Initiatives

- **Accounting methods**
- **Clean technologies**
- **Cut transport GHGs**
- **Improve efficiency**
- **Shift product demand**
- **Renewable energy**
- **Sequestration**
- **Future climate assess.**
- **Adaptive action plan**
- **Data collection**
- **Water management**
- **Better communication!**



# **Joint Agency Climate Team**

- **Formed by Resources Agency**
- **Develop policy strategy**
  - **Reduce GHG emissions**
  - **Adapt state structures to climate change**
- **Develop mitigation and adaptation initiatives**



# **Climate Change Advisory Committee**

## **Make recommendations:**

**“...most equitable and efficient ways to implement international and national climate change requirements based on cost, technical feasibility, and relevant information on current energy and air quality policies and activities and on greenhouse gas emissions reductions and trends...”**



# ***Schwarzenegger's Action Plan for California's Environment***

- **Recommend GHG emission reduction target**
- **Accelerate the RPS to 33% by 2020**
- **Accelerate use of solar photovoltaics**
- **Reduce electricity consumption by 20%**
- **Reduce petroleum dependence**
- **Create the "Hydrogen Highway"**
- **Encourage companies to join the Registry**
- **Coordinate with the Northeast and Europe**
- **Implement the Green Building Bank**



# California's Contribution?

- **Major emitter of GHG**
- **Significant actions underway**
  - Energy efficiency
  - Renewable resources
  - Environmental protection
  - Inventories
  - Registry
  - R&D Program
- **Regional leader**
- **Significant adverse impacts**